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formations described. After explaining the manner in which the thin sections were prepared, the following specimens were exhibited: A piece of Diorite from the northeastern corner of Saxony, a foliated chlorite slate, ferruginous gneiss. Nes'silicon steel ore, Diorite, quartzite rock with magnetic iron ore from the northeastern part of York County, hornblende slate, limestone containing particles of a substance probably apatite, a syenite from Germany, with hornblende, quartz, and orthoclase, and a syenite from near Gettysburg. The gizzard of a cockroach was also exhibited and shown to produce beautiful colors in polarized light.

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FEBRUARY 9.

The President, Dr. RUSCHENBERGER, in the chair.

Nineteen members present.

*Notes on some Parasitic Worms.*—Prof. LEIDY exhibited some nematoid worms, on which he made the following remarks:—

One of the species is common in feline animals, and is the *Ascaris mystax*. The specimens, consisting of fifteen females and five males, had been sent to Dr. Chapman, by Mr. Thompson, Superintendent of the Zoological Garden, who reports that they had been passed by the American wild-cat. The females measure from  $2\frac{1}{2}$  to 4 inches in length, by  $\frac{2}{5}$  to  $\frac{3}{5}$  of a line in thickness. The males measure from  $2\frac{1}{4}$  to  $2\frac{1}{2}$  inches in length, by  $\frac{1}{3}$  to  $\frac{1}{2}$  a line in thickness. The specimens are larger, and the alæ of the head proportionally better developed, and therefore more conspicuous than in those noticed at the previous meeting as having been passed by the Bengal tiger. The worms of the tiger are such as have been described under the name of *Ascaris leptotera*, which appears to be only a variety of *A. mystax*.

The other worm is a *Filaria*, apparently an undescribed species. Half a dozen individuals of the two sexes were obtained from the peritoneal cavity of an Australian Whallabee, which recently died in the garden of the Zoological Society. The characters of the parasite are as follow:—

*Filaria spelæa*.—Body filiform, translucent whitish, tapering at the extremities. Cephalic end straight, obtusely rounded, furnished with four equidistant papillæ around the mouth. Caudal end narrowest, rather abruptly attenuated, and spirally rolled once or twice, and terminating obtusely. A distinct anal aperture observable in the female. A row of eight papillæ on each side ventrally of the caudal end of the male; three in advance and the others back of the genital aperture. Penis a long, tubular style, thick at the upper part, narrow and curved below. Accessory piece a short, thick, curved tube, widening at the upper end in a spade-like, furcate portion.

Esophagus long, cylindrical, as wide as the succeeding intestine.

*Measurements:* Female, length 10 inches, thickness  $\frac{1}{4}$ th line. Length of tail from anal aperture  $\frac{7}{8}$ ths mm. Male, length 4 to  $4\frac{1}{2}$  inches; thickness  $\frac{1}{8}$ th inch. Tail, from genital aperture, forms  $\frac{2}{3}$  of a circle  $\frac{1}{2}$  a mm. in diameter. Penis  $\frac{7}{8}$ ths mm. long; accessory piece  $\frac{1}{8}$ th mm. long.

*On Increase of Power in Plants to Resist Cold.*—Mr. THOMAS MEEHAN referred to a tuber of *Solanum Fendleri*, exhibited by him some months ago, and which had taken a departure towards those of the common potato. He had offered some suggestions in relation to the possibility of a common origin of these two species; but among the improbabilities he had classed the power of resisting cold; as, while the common potato was easily destroyed by frost, Fendler's potato endured without injury a temperature of zero. He had been under the impression that whatever change plants might experience in the course of ages, the adaptation to special temperatures was nearly if not quite unchangeable.

A recent experience, however, suggested the possibility of more change than he had supposed. During the very low temperature, with the high wind of a few weeks ago, the frost to the extent of two degrees or so, and for a short time, got into a green-house with blooming plants, some of which were injured by it. Among these were *Calla*, *C. Æthiopica*, *Browallia elata*, *Bouvardias*, *Begonias*, and some others. The light frost, in the case of all but the first named, destroyed the leaves, but left the flowers uninjured. The flowers in their several parts are but metamorphosed leaves, and thus we see that with the morphological advance of the leaf to a petal came an increased physiological power to endure cold. In the case of the *Calla*, the flowers as well as the leaves were destroyed, illustrating the same law, as the spathe of this flower is but a leaf very slightly changed, and consequently more subject to the laws regulating leaf life.

There was nothing quite new in these observations, as all must remember that when the first light frost kills the *Dahlias*, *Chrysanthemums*, and other tender plants, the petals would often remain uninjured after the leaves had been blackened by frost; and also the fact that when the leaves of plants became still more highly metamorphosed, and became seeds, those of the tenderest plants would often endure considerable cold. Thus the seeds of the common *Convolvulus* or morning glory, and of the *Balsam* or lady's slipper, as it is called in American gardens, would live out in the earth in our severe climate and grow in the spring, though the plants would be killed by a single degree of frost.

The subject was attracting some attention just now through a paper of Professor De Candolle, abstracts of which were now going through scientific serials, in which he is made to say that in the

many changes which species have encountered through the course of ages, the peculiar adaptation to special temperatures has been among the least changeable of characters. Of course what are known as theories of evolution hardly find a parallel in the cases he had referred to. Evolution deals with the modification of organs. It is still the same organ though changed in form. The modified leaf is still a leaf, though it may be contended to be specifically distinct from its parent. In the cases he brought forward it was an absolute change of one organ to another organ. Yet he thought it was impossible to conceive of evolutionary movements wholly independent of morphological laws. However, he offered the facts for whatever they might be worth, and the suggestions on them only as leading to thought on the greater question.

*On Green-Sand Vertebrata.*—Prof. COPE made some observations on the vertebrates of the New Jersey cretaceous, and described the characteristics of several species of gavials. The genus *Hyposaurus* possesses a sagittal crest. The *H. fracterculus*, Cope, is the smallest of the species, and must be referred to the genus *Gavialis*. The chimæroid fishes are very abundant, about twenty species being included in a monograph of them now in course of publication. They belong to the genera *Leptomylus*, Cope, *Diph-rissa*, Cope (type *Ischyodus solidulus*), *Ischyodus*, Eggt., and others. *Leptomylus forfex*, and numerous other species were described for the first time.

*Effects of Cold on Iron.*—Mr. WILLARD referred to two instances of the brittleness of iron under the prevailing low temperatures which he noticed yesterday. In breaking up an old locomotive, the cutting off of the rivet heads, which usually requires heavy sledging, was effected by a single blow, as if they were made of cast iron. In the forging of a long steamboat shaft of the best hammered iron which hung balanced in a crane, the hammering of the heated end caused vibration in the overhung end—harmless in ordinary temperatures, but at 10° F. sufficient to cause the beam to break sharp near the point of support. The published tests of iron and steel show no loss of tensile strength at low temperatures under a gradual stress, but all experience shows great loss of *body*, or ability to resist a blow.

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FEBRUARY 16.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-eight members present.

Mr. Henszey announced that Mr. Isaiah V. Williamson had given to the Academy ground-rents to the amount of \$25,000, the